STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

MEMORANDUM TO: Project Engineers
Project Design Engineers

FROM: G. R. Perfetti, P. E.
State Bridge Design Engineer

DATE: January 29, 2010

SUBJECT: INTERMEDIATE STEEL DIAPHRAGMS FOR MODIFIED BULB-TEE GIRDERS

Effective immediately, it will be the Structure Design Unit's policy to detail intermediate steel diaphragms in lieu of cast-in-place concrete diaphragms on all prestressed modified bulb-tee girder bridges. A new standard drawing, PCG13(SM), has been developed and is available for your use.

The number of diaphragms required per span shall be as follows:

- None for spans less than 40 feet,
- One at mid-span for spans between 40 and 100 feet, inclusive, and
- Two at third points for spans over 100 feet.

For skews between 70° and 110°, the steel diaphragm(s) shall be placed along the skew with bent connector plates. For all other skew angles, detail the diaphragms normal to the girder web and stagger the connector plates.

For corrosive and highly corrosive environments, the steel diaphragms and bent gusset plates shall be metallized, with no option to galvanize. Modify the standard note to require metallizing. For all environmental conditions, the bolts, washers, nuts and DTIs shall be galvanized in accordance with the Standard Specifications.

PCG13(SM) should be used in conjunction with Standard Drawings PCG9(SM) and PCG10(SM), which have been revised to show the size of holes through the girder web and reinforcing around the holes.

The new and revised standard drawings are available on both the network drive and via the Structure Design Unit web site.

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